

In the Claims

Claim 1 (Currently amended): A method of measuring the molecular mass of a compound Y of unknown molecular mass by mass spectrometry, comprising

providing a sample of compound Y,

providing samples, a sample of at least two different compounds each of Formula (I), R-X which are calibration compounds of predetermined molecular mass, in which R is a trityl group and X is cleavable to form a charged species for mass spectrometry,

and recording the molecular mass of compound Y and the at least two compounds of Formula (I) in a mass spectrometer,

and comparing the recorded or measured molecular mass of compound Y to that of the at least two calibration compounds of Formula (I), correcting for any difference between the predetermined mass of the calibration compounds and their recorded mass.

Claim 2 (Original): The method, according to claim 1, in which R is $R^1R^2R^3C$ - wherein R^1 , R^2 and R^3 are the same or different and each is a monocyclic or fused ring aromatic group that is substituted or unsubstituted.

Claim 3 (Original): The method, according to claim 2, in which at least one of R^1 , R^2 and R^3 carries a substituent selected from the group consisting of substituted or unsubstituted C_1-C_{20} alkoxy and hydrocarbyl.

Claim 4 (Original): The method, according to claim 3, in which the alkoxy or hydrocarbyl is substituted by a substituent selected from the group consisting of carboxylic acid, sulphonic acid, nitro, cyano, hydroxyl, thiol, primary, secondary or tertiary amino, primary or secondary amido, anhydride, carbonyl halide and active ester.

Claim 5 (Original): The method, according to any of claim 2, in which each of R^1 , R^2 and R^3 is aryl.

Claim 6 (Original): The method, according to claim 5, wherein said aryl is phenyl.

Claim 7 (Original): The method, according to claim 1, in which the trityl group R has at least two amide substituents.

Claim 8 (Original): The method, according to claim 7, wherein said trityl group R has at least four amide substituents.

Claim 9 (Original): The method, according to claim 2, in which R^1 , R^2 and R^3 together carry at least two amide groups and/or at least two reactive groups for coupling.

Claim 10 (Original): The method, according to claim 9, wherein said groups are N-hydroxy succinimide ester groups.

Claim 11 (Original): The method, according to claim 1, in which X is halide or tosylate.

Claim 12 (Original): The method, according to claim 1, comprising providing at least five compounds of Formula (I) and recording their molecular masses in a mass spectrometer.

Claim 13 (Original): The method, according to claim 1, in which the group X is photocleavable to form a charged species for mass spectrometry.

Claim 14 (Original): The method, according to claim 1, additionally comprising estimating the molecular mass of unknown compound Y as M_y and providing at least one compound of Formula (I) which has known molecular mass M_1 below M_y and at least one different compound of Formula (I) which has molecular mass M_2 above M_y .

Claim 15 (Original): The method, according to claim 14, wherein the difference between M_y and each of M_1 and M_2 is not more than $\pm 50\%$.

Claim 16 (Original): The method, according to claim 1, additionally comprising providing a sample of at least one further compound Z of unknown molecular mass and measuring the molecular mass of compound Z.

Claim 17 (Currently amended): Use of A method of using a compound of Formula (I) R-X, in which R is a trityl group and X is cleavable to form a charged species for mass spectrometry, as a calibration compound for mass spectrometry, comprising the steps of introducing the compound into a mass spectrometer, forming the charged species by cleavage of X, measuring the mass of the charged species and calibrating the mass spectrometer based on a comparison between the measured mass of the charged species and the predetermined mass of the charged species.

Claims 18-31 (Cancelled)

Claim 32 (Currently amended): A method of measuring the molecular mass of a compound Y of unknown molecular mass comprising

estimating the expected molecular mass of compound Y, selecting at least one calibration compound of Formula (I) R-X having a predetermined molecular weight close to the expected molecular weight of the compound Y, in which R is a trityl group and X is cleavable to form a charged species for mass spectrometry;

and subjecting both compounds to mass spectrometry simultaneously to obtain the measured molecular weight of compound Y and the at least one calibration compound of Formula (I); and comparing the measured molecular weight of compound Y to that of the at least one calibration compound of Formula (I), correcting for any difference between the predetermined molecular weight and the measured molecular weight of the at least one calibration compound Formula (I).

Claim 33 (Original): The method, according to claim 32, in which the calibration compound R-X is provided by selecting a base reactant R-X and selecting an amine reactant of appropriate molecular mass and reacting the amine reactant and the base reactant.

Claims 34-36 (Cancelled)

Claim 37 (Currently amended): A method of mass spectrometry calibrating a mass spectrometer comprising subjecting simultaneously to mass spectrometry at least two different compounds of Formula (I) R-X, which are calibration compounds of different predetermined molecular masses, in which R is a trityl group and X is cleavable to give a charged species for analysis by mass spectrometry, thereby obtaining measured molecular masses; and calibrating the mass spectrometer based on the difference between the measured molecular masses of the calibration compounds and the predetermined molecular masses.